Abstract

An apparatus for estimating the frequency (f_{a1}) and/or the phase (φ_{a1}) of a digital input signal (x(i)) comprises: a phase recording device (3) which determines phase values ($C_{a1}(i)$) of the input signal (x(i)); a first filter (4), which adds up the phase values ($C_{a1}(i)$) over a predetermined summation length N/B, which is a predetermined fraction 1/B of an observation length of N phase values ($C_{a1}(i)$), to form added-up phase values ($S_{a1}(i)$), and which reduces the sampling rate of the added-up phase values ($S_{a1}(i)$) by a factor N/B in comparison with the sampling rate (f_{a2}) of the phase values ($C_{a1}(i)$), a second filter (8) which delays the added-up phase values ($S_{a1}(i)$) in a chain of at least B-1 delay elements (15, 16; 26-30), each delaying the added-up phase values ($S_{a1}(i)$) by one sampling period of the reduced sampling rate ($f_{a2} \bullet B/N$), and adds or subtracts the differently-delayed added-up phase values ($S_{a1}(i)$), to create a resulting pulse response (h_f) of the frequency such that the resulting pulse response (h_f) of the frequency is constant positive in a first interval (40), is zero in a second interval (41) and is constant negative in a third interval (42), and/or they are added to create a resulting pulse response (h_φ) of the phase so that the resulting pulse response (h_φ) of the phase is constant in at least a middle interval (43) and otherwise is zero.